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# PATENT SPECIFICATION

1,074,344

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## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

#### Urine Collector

We, HOLLISTER INCORPORATED, a corporation organised under the laws of the State of Illinois, United States of America, of 833 North Orleans Street, Chicago, Illinois, United States of America, do hereby declare this invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a urine collector and more particularly to a device readily attachable to the body of a human for the purpose of collecting urine and retaining the same without danger of spilling.

Urine collectors are needed under a large number of circumstances. In some cases a physical incapacity to retain urine has necessitated that a person so afflicted wear some sort of bag to collect and retain the urine for subsequent disposal. While the urine collector of the present invention is useful under such circumstances, it finds its particular advantage in the pediatric field for providing urine specimens of infants who, while capable of retaining urine, are incapable of understanding the necessity of retaining the same until a suitable receptacle can be provided. On the other hand, if a receptacle suitable for collecting urine samples is provided, the infant has no way of knowing what is expected of it and may not co-operate. The urine collectors of the present invention can be used to advantage under such circumstances.

According to the present invention there is provided a urine collector comprising a liquidproof bag having an opening for the reception of urine from a user of the collector, and adhesive-bearing material surrounding the opening and having an aperture so that urine can enter the collector by way of the aperture and the opening, said

material being secured to an exterior surface portion of the bag around the perimeter of the opening, there being a balance of said material free of attachment to the bag.

The invention will now be described with reference to the accompanying drawings which illustrate a number of exemplary embodiments thereof and in which:—

Figure 1 is a perspective view of a form of the invention;

Figure 2 is a vertical sectional view of the embodiment of Figure 1 showing the same in place;

Figure 3 shows the collector of Figure 2 removed from the body and folded to close the entrance opening;

Figure 4, is a top plan view of a second embodiment of the invention;

Figure 5 is a sectional view showing the embodiment of Figure 4 in place;

Figure 6 is a sectional view taken along line 6-6 of Figure 5;

Figure 7 is a top plan view of a third embodiment of the invention;

Figure 8 is a vertical sectional view showing the embodiment of Figure 7 in use;

Figure 9 is a horizontal section taken along line 9-9 of Figure 8;

Figure 10 shows the embodiment of Figure 7 folded to close the opening thereof;

Figure 11 is a fragmentary view of the bottom portion of a urine collector similar to that shown in Figure 7 but differing therefrom so as to constitute an additional embodiment;

Figure 12 is a top plan view of a fifth embodiment of the invention;

Figure 13 is a view like Figure 12 of a sixth embodiment of the invention;

Figure 14 is an enlarged vertical section taken along line 14-14 of Figure 12;

Figure 15 is an enlarged vertical section

[P 1]

taken along line 15-15 of Figure 13;

Figure 16 is a side elevational view of an additional form of the invention;

Figure 17 is a horizontal section taken along line 17-17 of Figure 16;

Figure 18 is a vertical section taken along line 18-18 of Figure 16;

Figure 19 is a view like Figure 16 of yet another form of the invention; and

Figure 20 is a diagonal sectional view taken along line 20-20 of Figure 19.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail several embodiments of the invention, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiments illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to the simplest form of the invention shown in Figure 1, there is there illustrated a urine collector comprising a bag 20, preferably made of flexible transparent plastic material, sealed along its edges 21 and having an opening 22 therein positioned adjacent but below the top 23 of the bag. Sealed to an outer surface of the bag around the opening 22 is a piece of adhesive material 24 provided with a hole 25 coincident with the opening 22 and covered when not in use by a peel patch 26. The urine collector of Figure 1 is adapted primarily for use on male infants and when employed, the peel patch 26 is peeled back from the adhesive material to expose the same and the bag is then adhesively secured to the body as shown in Figure 2. Urine is collected as illustrated in that Figure and upon removal, the bag may be folded across the center of the opening so as to bring opposed adhesive-carrying surfaces of the material 24 into contact with each other to seal the bag and the urine therein.

The embodiment of Figures 4-6 is preferably used with female infants and comprises a bag 30 sealed along its edges 31 and provided with an opening 32 near the top 33. A piece of adhesive material 34 is secured to the outer surface of the bag around the opening 32 with the material 34 having a hole 35 therein coincident with the opening 32. A peel patch 36 is removably applied to the adhesive surface of the material 34 and removed before application. In this embodiment it will be noted that the material 34 is provided with a pair of integral ears 37 spaced on either side of and below the opening 32. The opposite side of these ears is not secured to the outer surface of the bag 30, and these ears serve securely to hold the urine collector in position on the body of the infant.

A somewhat more sophisticated version of the urine collector is illustrated in Figures 7-10. As shown in those Figures, the urine collector comprises a bag 40, again of flexible transparent plastic material, 70 having a front side 40a and a back side 40b. The sheets forming the front and back sides are sealed together along their edges 41, and the back side 40b is provided with an opening 42 therein with the opening being 75 located adjacent but spaced from the top of the bag. A piece of adhesive material 44 is secured to the outer surface of the back side 40b surrounding the opening 42, with the material being provided with a hole 45 coincident with the opening. A peel patch 46 80 covers the adhesive material prior to its use.

The device of Figures 7-10 is obviously adapted for use with male infants and in 85 order to prevent leakage of urine, means are provided to divide the bag into two compartments, one a receiving compartment which receives the urine from the body of the user, and the other a storage compartment 90 in which the urine is stored, the partition providing a unidirectional flow from one compartment to the other. For this purpose there is provided a partition 48 in the form of a triangular piece of flexible 95 plastic material whose base 48a is sealed to the back side 40b while the two sides 48b of the triangular portion are sealed to the front side 40a. The apex 48c is sealed to neither side and hence provides an opening 100 through which urine may flow from a receiving compartment 49a in communication with the opening 42 to a storage compartment 49b separated from the receiving compartment by the partition. When urine is 105 passed it flows to the receiving compartment 49a and thence through the passage formed by the apex 48c into the storage compartment 49b. The weight of urine in the storage compartment effectively holds the apex 48c 110 of the partition against the front wall 40a, thereby closing the passage at the apex and restricting or preventing urine from flowing from the storage compartment into the receiving compartment. Like the urine 115 collectors of the previous embodiments, the one just described may, after being used, be folded as shown in Figure 10 to seal the opening 42.

The adhesive material of the device of 120 Figures 7-10 may have two ear-shaped portions unattached to the bag and extending generally away from the top end of the device as viewed in Figure 7.

The modification shown in Figure 11 is 125 very similar to that just described and includes a bag 50 having a front side and a back side formed of flexible plastic sheets sealed together at their edges 51. The partition 58 while sealed along its base to the 130

back side is also sealed along its sides 58b to the back side as well as to the front side. Again, an opening is provided at the apex 58c for flow of urine from a receiving compartment into a storage compartment, the two compartments being separated by the partition as in the previous embodiment.

In Figures 12 and 14 there is illustrated yet another form of the invention including a bag 60 having a front side 60a and a back side 60b sealed together along their edges at 61. The back side 60b is provided with an opening 62 to receive urine, with the opening being adjacent the top 63 of the bag. A piece of adhesive material 64 is secured to the back side 60b around the opening 62, with the material being provided with a hole 65. The adhesive material is covered with a peel strip 66 and is provided with integral ears 67 in the same manner as described with reference to Figure 4. A partition 68 is secured along its sides 68b to the interior surface of the back side 60b, while the apex 68c formed by such sides is unsealed so as to provide a passage from the receiving compartment 69a to the storage compartment 69b. The partition 68, apart from the side 60b and apex 68c, is sealed to the edge 61 of the bag.

The modification illustrated in Figures 13 and 15 is similar to that just described with reference to Figures 12 and 14, and similar reference numerals (plus 10) have been used to designate like parts. The partition 78 of the embodiment of Figure 13 however, is not trimmed to form an apex but is provided with a free edge 78d. Portions of the partitions spaced from the edge 78d are sealed along diagonal lines 78e to the back side 70b and an opening at the apex 78c of said lines is provided to establish communication between the receiving compartment 79a and the storage compartment 79b.

Yet another form of the invention is illustrated in Figures 16-18 wherein a single sheet of plastic material is folded to form a bag 80 having a fold line 81a and having opposite edges 81b sealed to each other to form a closed container. As in the previous embodiments, there is provided an opening 82 in the fold edge 81a together with a piece of adhesive-bearing material 84 secured to the outer surface of the bag surrounding the opening. A peel strip 86 may be removed to expose the adhesive, and the piece 84 being provided with integral ear portions 87 similar to those previously described.

Within the bag 80 there is provided a second bag of plastic material extending only part way from top to bottom of the bag 80 and, in fact, terminating along the line 88d as illustrated. The inner bag or partition 88 is secured to the inner surface of

the bag 80 at all points except at point 88c, the latter point forming a passage between the receiving compartment 89a in which the bag 88 is located (which receiving compartment communicates with the opening 82) 70 and the storage compartment 89b.

The modification shown in Figure 19 and 20 is similar in most respects to the embodiment just described and similar numerals (plus 10) have been used to describe the same parts. The principal difference is in the location of the passage establishing communication between the receiving compartment and the storage compartment, said passage 98c being located along the edge 91b rather than adjacent the fold line 91a as in the previous embodiment.

In all of the forms disclosed, the adhesive-bearing material is secured to the bag only around the edges of the opening, and the balance of the material is free of attachment to the bag. For the female design particularly, it is advantageous to leave all but that part of the adhesive-bearing material immediately surrounding the opening free of attachment to the bag.

In each of the forms disclosed in Figures 1 to 15, the opening of the bag can be sealed by folding the collector to bring adhesive regions on opposite sides of that opening into engagement with each other.

In each of those forms disclosed which have a passage between receiving and storage compartments, the arrangement is such that, in use of the collector, urine can flow from the first compartment to the second compartment but urine flow in the reverse direction is restricted, or prevented.

It will be appreciated that there is disclosed herein a disposable urine collector particularly adaptable for use with male and female infants. The device of Figures 12 to 20 is obviously adapted for use with male infants.

#### WHAT WE CLAIM IS:—

1. A urine collector comprising a liquid-proof bag having an opening for the reception of urine from a user of the collector, and adhesive-bearing material surrounding the opening and having an aperture so that urine can enter the collector by way of the aperture and the opening, said material being secured to an exterior surface portion of the bag around the perimeter of the opening, there being a balance of said material free of attachment to the bag.

2. A urine collector according to claim 1, wherein said material has two ear-shaped portions unattached to the bag.

3. A urine collector according to claim 1 or claim 2 including a peel patch detachably covering the adhesive-bearing material.

4. A urine collector according to any one of the preceding claims having a first compartment for receiving urine from the

- opening, a second compartment for storing urine, and means for providing urine communication between compartments, the arrangement being such that, in use of the collector, urine can flow from the first compartment to the second compartment but urine flow in the reverse direction is restricted or prevented.
5. A urine collector according to claim 4, wherein a partition provides a division between the first and second compartments.
6. A urine collector according to claim 5, wherein the partition comprises a flexible liquidproof sheet attached to the bag but there being a portion of the sheet which is unattached to the bag, the unattached portion defining a passage for urine which can be opened by the pressure of urine in the first compartment and closed, or substantially closed, by the pressure of urine in the second compartment.
7. A urine collector according to claim 6, wherein the sheet is substantially in the form of a triangle with its base attached to the inside of the bag to one side of the opening and with the sides of the triangle extending generally away from said opening and attached to the inside of the bag, the sides in the region of the apex being unattached to the bag whereby to provide said passage for urine.
8. A urine collector according to claim 7, wherein the sides of the sheet are attached to a wall of the bag which faces a wall having the opening.
9. A urine collector according to claim 6, wherein the sheet is attached to the inside of the bag to one side of the opening and is attached to the inside of the bag on an opposite side of the opening in such fashion as to provide said passage on said opposite side of the opening.
10. A urine collector according to claim 9, wherein the sheet is secured to the bag on said one side of the opening between two walls of the bag and in which the passage is defined between the adjacent ends of lines of attachment of the sheet to the bag on said opposite side of the opening.
11. A urine collector according to claim 10, wherein said lines of attachment generally converge away from said opening.
12. A urine collector according to claim 4, wherein the liquidproof bag has there-within a further liquidproof bag, the further liquidproof bag having an opening co-operating with the opening of the first-mentioned liquidproof bag, opposing portions of the bags surrounding the openings being connected together, the further liquidproof bag providing the first compartment and there being a region of the first-mentioned liquidproof bag to provide the second compartment.
13. A urine collector according to claim 12, wherein said communication means is formed in a wall of the further-mentioned liquidproof bag.
14. A urine collector according to claim 12 or claim 13, wherein each of the openings of the liquidproof bags is in an edge of the bag, and wherein the adhesive-bearing material is folded back on either side of the edge of the first-mentioned liquidproof bag.
15. A urine collector according to any one of claims 1 to 11, wherein the opening of the liquidproof bag can be sealed by folding the collector to bring adhesive regions on opposite sides of that opening into engagement with each other.
16. A urine collector according to claim 4, or any claim dependent on claim 4, wherein said communication means, in use of the collector, is disposed substantially vertically below the opening of the, or the first-mentioned, liquidproof bag.
17. A urine collector substantially as herein described with reference to Figures 1 to 3.
18. A urine collector substantially as herein described with reference to Figures 4 to 6.
19. A urine collector substantially as herein described with reference to Figures 7 to 10.
20. A urine collector according to claim 19 as modified substantially as herein described with reference to Figure 11.
21. A urine collector substantially as herein described with reference to Figures 12 and 14.
22. A urine collector substantially as herein described with reference to Figures 13 and 15.
23. A urine collector substantially as herein described with reference to Figures 16 to 18.
24. A urine collector substantially as herein described with reference to Figures 19 and 20.
- A. A. THORNTON & CO.,  
Chartered Patent Agents,  
Northumberland House,  
303/306 High Holborn,  
London, W.C.1.

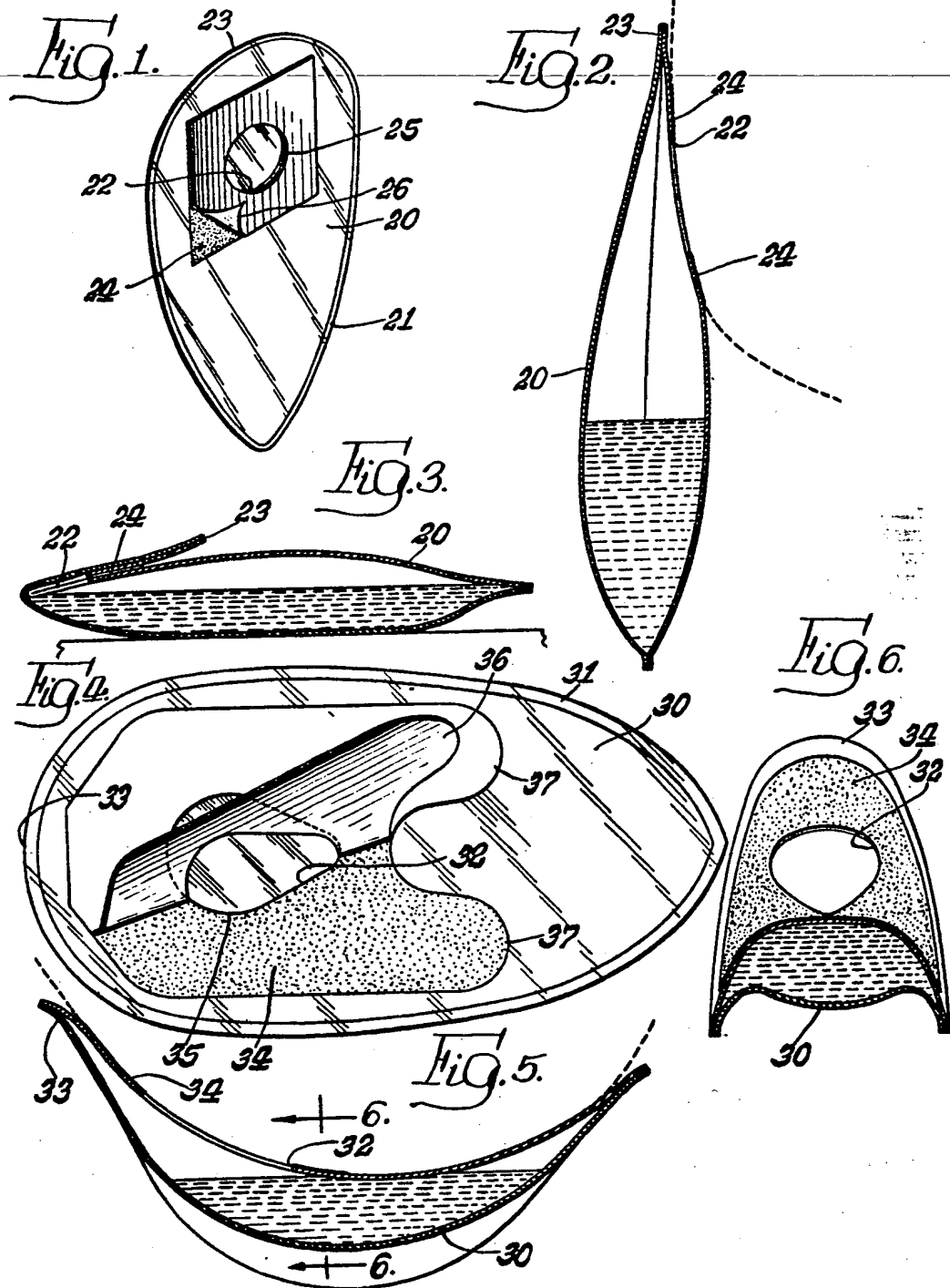


Fig. 7.

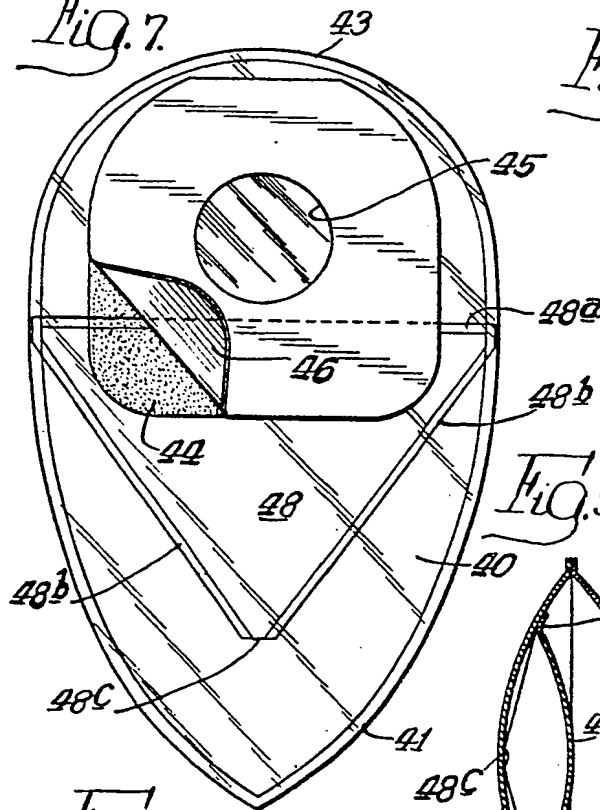


Fig. 8.

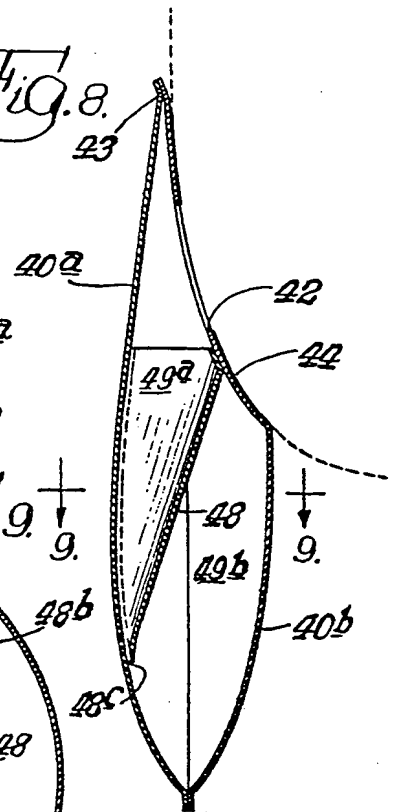


Fig. 9.

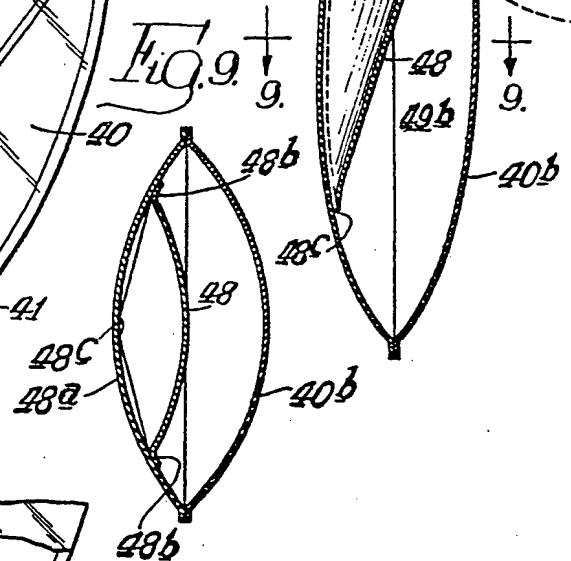


Fig. 11.

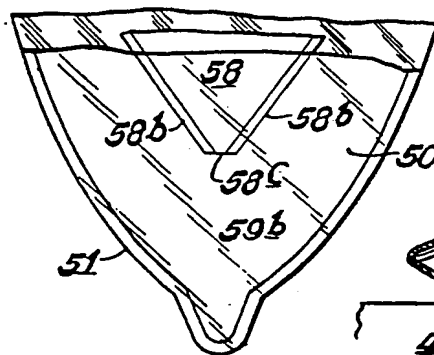
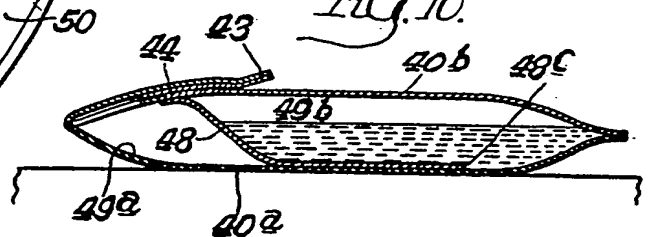


Fig. 10.



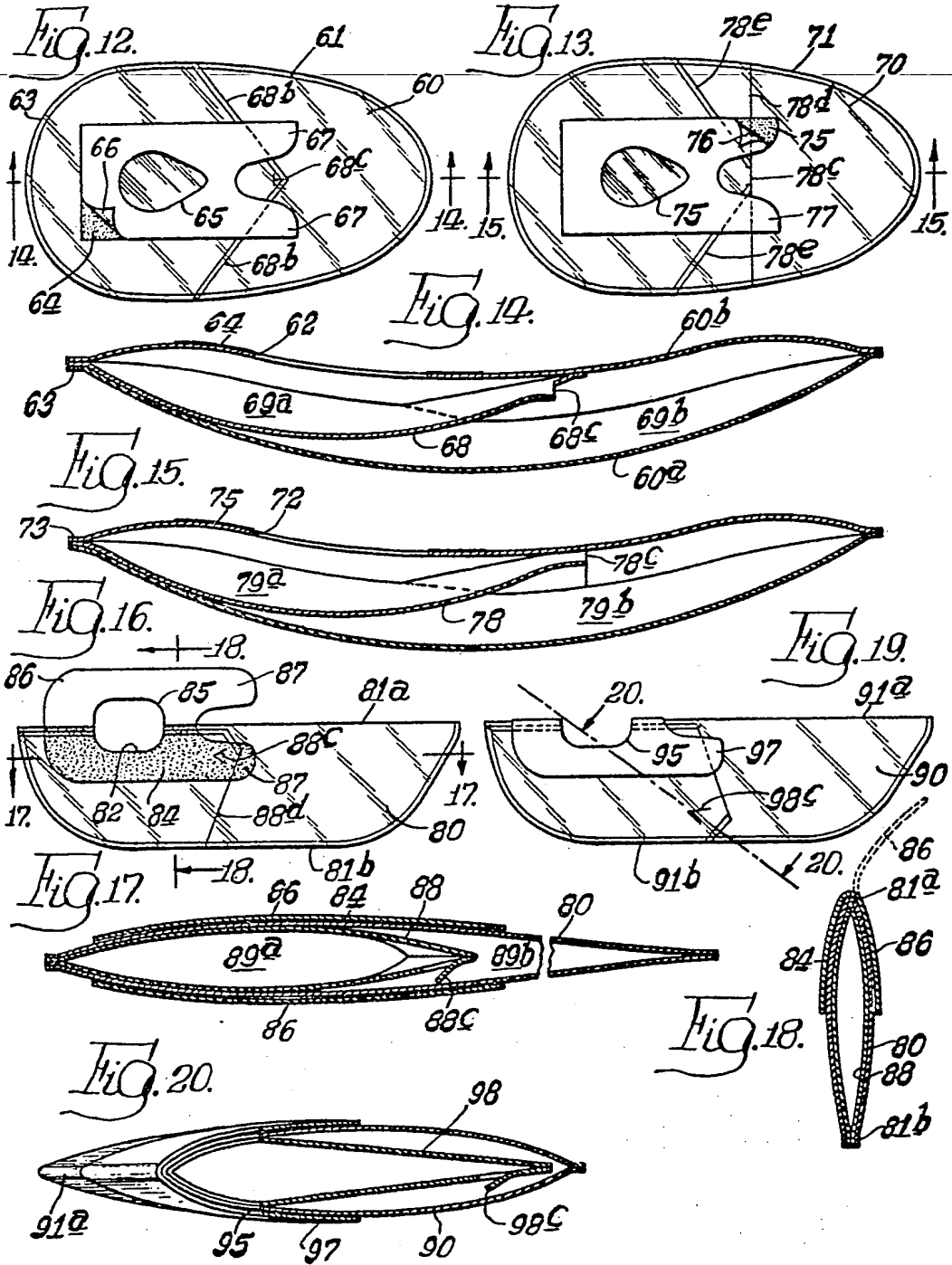


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